

### **REMARKS**

Claims 1-3, 8-9, 11-20, 22-23, and 28-33 remain in the case. Claims 4-7, 10, 21, and 24-27 were withdrawn from consideration. Claims 1-3, 8-9, 11-12, 15-20, 22-23, 28-30, and 33 were rejected.

Claims 1-3, 8-9, and 11-20 have been amended in view of the Office Action and to better define what the Applicants consider their invention, as fully supported by an enabling disclosure.

Amendments for the features of compactness of the device in independent claims 1 and 20 can be found for example at paragraph [0056], [0043].

Amendments for the feature of a high-speed rotor-bearing system in independent claims 1 and 20 can be found for example at paragraph [0002].

Amendments for the feature of a minimized shaft length system in independent claims 1 and 20 can be found for example at paragraphs [0052] and [0058].

Reconsideration in view of the following remarks and entry of the foregoing amendments are respectfully requested.

No new matter has been added.

### **REJECTION UNDER 35 U.S.C. § 102, SECOND PARAGRAPH**

Claims 1-3, 12, 16-18, 20, 22 and 30 have been rejected as being anticipated by **Imlach** under 35 U.S.C. § 102, second paragraph.

Applicants respectfully traverse the rejection as follows.

Applicants amend independent claims 1 and 20 to more precisely recite what they believe the invention is, as supported by the application as filed.

The standard for anticipation is one of fairly strict identity: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "When a claim covers several structures or compositions, either generically or as alternatives, the

claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) (claim to a system for setting a computer clock to an offset time to address the Year 2000 (Y2K) problem, applicable to records with year date data in "at least one of two-digit, three-digit, or four-digit" representations, was held anticipated by a system that offsets year dates in only two-digit formats). See also MPEP § 2131.02. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).<sup>\*</sup> The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In the present invention, as recited in amended independent claims 1 and 20, the magnetic field interaction opposes an external force  $F_{\text{ext}}$ , i.e. it is repulsive or attractive (see abstract of the invention as filed, see paragraphs [0016], [0021], and [0042] as filed). Indeed, the external force  $F_{\text{ext}}$  may be either attractive (see paragraphs [0030] – [0039] in relation to Figures 1 to 3 as filed), or repulsive (see paragraphs [0039]) – [0041] in relation to Figures 1 to 3 as filed). As summarized in paragraph [0042] as filed, either an attraction force or an expulsion force are generated.

**Imlach** discloses a system wherein there is a repulsive magnetic field interaction and an attractive of the magnetic field interaction (see column 4, lines 9-14) simultaneously.

Therefore, **Imlach** fails to recite a device as recited in amended independent claims 1 and 20.

Claims 1, 20 and 33 have been rejected as being anticipated by **Tanaka et al.** under 35 U.S.C. § 102, second paragraph.

Applicants respectfully traverse the rejection as follows.

**Tanaka et al.** describe that system wherein a repulsive force is created

between the two opposing magnets 41 and 44 support the top member 40-42 floatingly in the axial direction and rotating at high speed (see top page 11 of the English translation), so that during this rotation, if large external vibration or shock occurs and causes the sleeve 32 to oscillate in the axial direction, the [top member] 42 hits the [lower] case 45 (...).

**Tanaka et al.** fail to recite a device as recited in independent claims 1 and 20.

In view of the above and foregoing, it is respectfully requested that the Examiner withdraw his rejection of claims under 35 U.S.C. § 102, second paragraph.

#### **REJECTION UNDER 35 U.S.C. § 103, FIRST PARAGRAPH**

Claims 8, 9, 28 and 29 have been rejected as being unpatentable over **Imlach** in view of **Ono et al.** under 35 U.S.C. § 103, first paragraph.

Applicants respectfully traverse the rejection as follows.

**Ono et al.** relate to a magnetic levitating transportation system including a vehicle capable of travelling along a rail.

The Examiner has not provided a reasonable articulated line of reasoning as to why a person of skill in the art would, at the filing date of the present application have considered **Imlach** in combination with **Ono et al.** which fail to address any problem related to that of the present invention.

The present invention is directed to a device that achieves a high thrust load capacity while overcoming the design difficulties, as described in paragraphs [0005]-[0007]:

- a high load capacity means a large thrust area in the shaft, but the thrust area is limited by a maximum outer diameter ("OD") due to a rotor material strength limit;
- a high load capacity often requires large size coils and magnetic flux path in a stator, resulting in a large axial dimension of the stator, thus in turn requiring a longer rotor, but the rotor length is limited by shaft mode frequencies; and
- a high current is generally required in the coils, but it is limited by the

temperature rise in the winding. Moreover, high current involves costly power electronics.

Prior to the present invention, no one had thought of a compact system as recited in the claims, of optimized geometry and arrangement, allowing a minimum volume of magnet to be used (see paragraph [0036]). Other strategies were at play. It was surprising and completely against expectation that the particular arrangement of the present invention, at minimum increase of length (i.e. mass), (see for example paragraphs [0041] and [0047]), could allow achieving a high thrust load capacity for a high-speed rotor-bearing system, while overcoming the design difficulties.

The Supreme Court in the recent KSR case "[...] there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" [...] *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

It is respectfully submitted that, in the present case, given the disparity of problems addressed by the applied prior art references, and the differing solutions proposed by them, any attempt to combine them in the manner proposed by the Examiner can only come from Applicants' own disclosure using hindsight reconstruction.

Claim 11 has been rejected as being unpatentable over **Imlach** in view of **Guy** and **Thomas** under 35 U.S.C. § 103, first paragraph.

Applicants respectfully traverse the rejection as follows.

**Guy** discloses an asynchronous motor having a rotor made of carbon sheet.

**Thomas** discloses a step motor with a stator made in mild steel (see column 2, lines 9-12).

The Examiner has not provided a reasonable articulated line of reasoning as to why a person of skill in the art would, at the filing date of the present application have considered **Imlach** in combination with **Guy** and **Thomas** which fail to address any

problem related to that of the present invention.

It is respectfully submitted that, in the present case, given the disparity of problems addressed by the applied prior art references, and the differing solutions proposed by them, any attempt to combine them in the manner proposed by the Examiner can only come from Applicants' own disclosure using hindsight reconstruction.

The rejections of the claims are believed to have been overcome by the present remarks and amendments. From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such an action is earnestly solicited.

Authorization is hereby given to charge Deposit Account no. 13-3405 for any deficiencies or overages in connection with this response.

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